

UNIVERSITY OF SASKATCHEWAN
COLLEGE OF AGRICULTURE



RAINFALL RECORDS *for* SASKATCHEWAN

Contributed by
DEPARTMENT OF FIELD HUSBANDRY



DIVISION OF METEOROLOGY
DEPARTMENT OF GEOGRAPHY
UNIVERSITY OF ALBERTA

Major Soil Zones for Saskatchewan

- | | |
|---------------|---------------|
| 1.—BROWN | 3.—BLACK |
| 2.—DARK BROWN | 4.—GREY SOILS |

SASKATOON, SASKATCHEWAN

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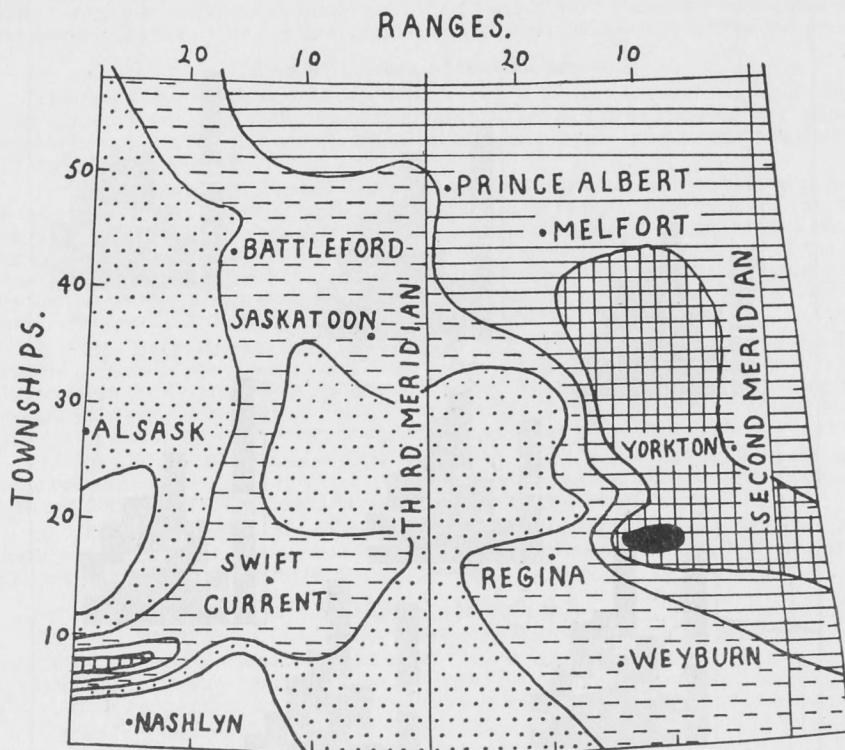
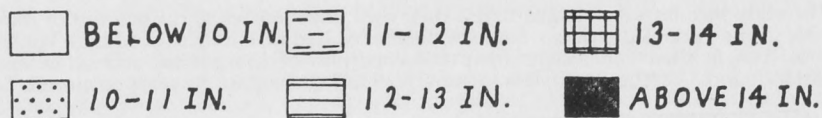


Figure 1. Map of Southern Saskatchewan Showing the Average Precipitation, April to October, Inclusive.

Figure 1, prepared by Dr. B. W. Currie of the Department of Physics, outlines the districts where the average precipitation from April to October is similar. Roughly, the precipitation zones are diagonal across the southern part of the province. There is an area of increased precipitation in the south-west where the Cypress Hills rise about 1000 feet above the surrounding country. From this area there extends northward a belt of more favorable rainfall than that prevailing in the surrounding districts. The area of highest precipitation is in eastern Saskatchewan with the maximum centering in the vicinity of Qu'Appelle. It is possible that small areas within each precipitation zone may, due to local conditions, have rainfall higher or lower on the average than that shown in the above map.

RAINFALL RECORDS FOR SASKATCHEWAN

By MANLEY CHAMPLIN, E. G. BOOTH and ROBERT O. BIBBEY

THE Province of Saskatchewan occupies an area of 251,700 square miles; consisting of approximately 237,975 square miles of land and 13,725 square miles of water.* This area extends 770 miles north of the International Boundary and averages about 350 miles in width. Agricultural settlement now covers most of the southern half. Over such an area it is not surprising that climatic conditions vary.

The early settlers were obliged to use their own judgment as to the amount of rainfall available in the various districts. Some of them exercised rare judgment in their choice of locations, basing their conclusions upon the condition of the grasses and other native vegetation found. Others were less fortunate. During the past 50 years or more, a fund



Figure 2. Average Monthly Distribution of Rainfall in Saskatchewan.

Figure 2 shows a distinct June peak in the rainfall of the southern, south-western and western areas of the province. A high percentage of the limited rainfall occurs during the crop months of May, June and July. Thus, satisfactory crop yields are obtained under conditions of relatively low annual rainfall. The June peak in precipitation also emphasizes the value of early summer fallowing for conservation of the June moisture. The high precipitation in the fall and winter months in northern and north-eastern districts, suggests an important factor for the favorable growth of perennial or biennial forage crops in those areas.

Fall precipitation is readily stored in the soil. Cool fall weather and lack of plant growth reduces moisture loss so that the rain is made available to succeeding crops. Snow acts as a protective covering for crops that winter over and supplies some moisture for their spring growth.

* Canada Year Book, 1934-35, Page 7.

of information has been accumulated with reference to rainfall and other weather conditions by the Dominion Meteorological Service. It has been published, in part, by A. J. Conner (1), and in several other official publications. The data given in this bulletin has been assembled for the purpose of making such information as now exists regarding the rainfall readily available to the resident farmer who must plan his farming operations with the rainfall factor always in mind, to governmental, insurance or other agencies that may have interests in Saskatchewan, and to prospective purchasers or settlers who wish to secure official information before determining upon a location.

Rainfall is not the only factor that makes for success or failure in agriculture. But it is a very important one, and without belittling any of the other things that must be considered, we wish to devote special attention in this bulletin to rainfall, which term is intended to include snow and sleet and hail, as well as rain.

Every effort has been made by the authors to obtain as reliable data as possible and to insure the accuracy of its tabulation. Where conflicting reports of the rainfall were obtained, an effort was made to use the figures closest to the records from nearby stations. In a few cases where records were missing, the district average, or figures from some nearby station were used. Care was taken that these figures were consistent with those of the surrounding district. The averages presented were compiled from data thus obtained.

The Soil Zones of Saskatchewan

The Soil Survey of Saskatchewan defines several distinct soil and vegetative regions. Since climate is the main factor in developing these areas, a brief review of the prevailing weather conditions, found in each, is included. The map on the cover page shows the extent of these zones.

1. **The Brown Soil Zone.**—This short-grass area, located in the south-west portion of the province, has a typical semi-arid climate. The rainfall, from year to year, varies greatly and, although the average for a particular station may be fairly high, a study of the individual records, presented in Tables 8 to 10, shows that during a few of the years there is too little moisture for satisfactory crop growth. This area also is in the path of dry south-westerly winds, commonly known as Chinooks. These cause high evaporation, and are frequently detrimental to crops if they occur at a critical season.

2. **The Dark Brown Soil Zone.**—This area of intermittent bush and open land extends diagonally south-east, north-west across the southern third of the province. It also includes the Cypress Hills plateau in the south-west of the province. A little higher precipitation than in the Brown Soil Zone is recorded in this area. Dry years are less frequent, and, due to generally lower temperatures, moisture is more efficient.

3. **The Black Soil Zone.**—Characterized by fairly heavy tree growth, the area is commonly known as the Park Belt. Rainfall shows a decided increase, and this, coupled with reduced evaporation, results in consistently higher yields of crops.

4. **The Grey Soil Zone.**—This zone lies to the north of the Black Soil Zone, and is characterized by a long established forest. Moisture efficiency is fairly high in this area. Soil fertility is the deciding factor for crop growth.

A Study of the Rainfall

Tables 1 to 7 give a record of the average rainfall by months, each table giving the monthly average for the same period of years. It is possible, therefore, to compare the average rainfall at a station established over 50 years ago with one established only a decade. The stations are grouped by Soil Zones to show precipitation data for any given area.

Tables 8, 9 and 10 give the total precipitation for the year (January to December), season (April to July) and the crop (August to October and April to July) respectively. Fluctuation in rainfall over different years or seasons may be observed from these records.

Influence of Rainfall on Crop Production

According to experiments conducted by Professor F. H. King, of Wisconsin University, the following amounts of water in pounds are used by the various farm crops in producing a pound of dry matter:

Oats.....	385
Barley.....	464
Corn.....	271
Peas.....	477
Clover.....	576
Potatoes.....	385

Mr. S. Barnes, working at the Dominion Experimental Station at Swift Current, Saskatchewan, found that it required, as an average for seven years (1924-30) about 1,348 pounds of water to produce a pound of grain when wheat was growing on summer fallow, and nearly twice that amount when wheat was growing on wheat stubble. †

† Publication No. 595, Dom. Dept. of Agric., Jan. 1938, page 32.

These vast amounts of water are required because water acts as the transporting agency for all food supplies within the plant. It also keeps the plant tissues turgid and enters extensively into its development. In performing these duties, large quantities of water pass off into the air through stomata or pores in the leaves. Thus we may readily understand why such large amounts of water are required. Since there are about 113 tons of water in an acre inch of rain, we are able to compute the amounts of water that have fallen at any station by multiplying the figures indicating the number of inches of rain by 113.

In a region like the settled section of Saskatchewan where the soils are naturally fertile, the amount of rainfall, less the amount lost through weeds, run off and evaporation, determines the crop yield, barring losses due to plant diseases, insect enemies, floods, wind and frost.

Although a study included in the first edition of this bulletin indicates a correlation between crop yields and the amount and distribution of rainfall, it does not follow that the individual grower is entirely at the mercy of the atmospheric conditions which determine the time and the quantity of rainfall. It is possible for an individual or a community to take measures which help greatly in conserving and more fully utilizing the available moisture.

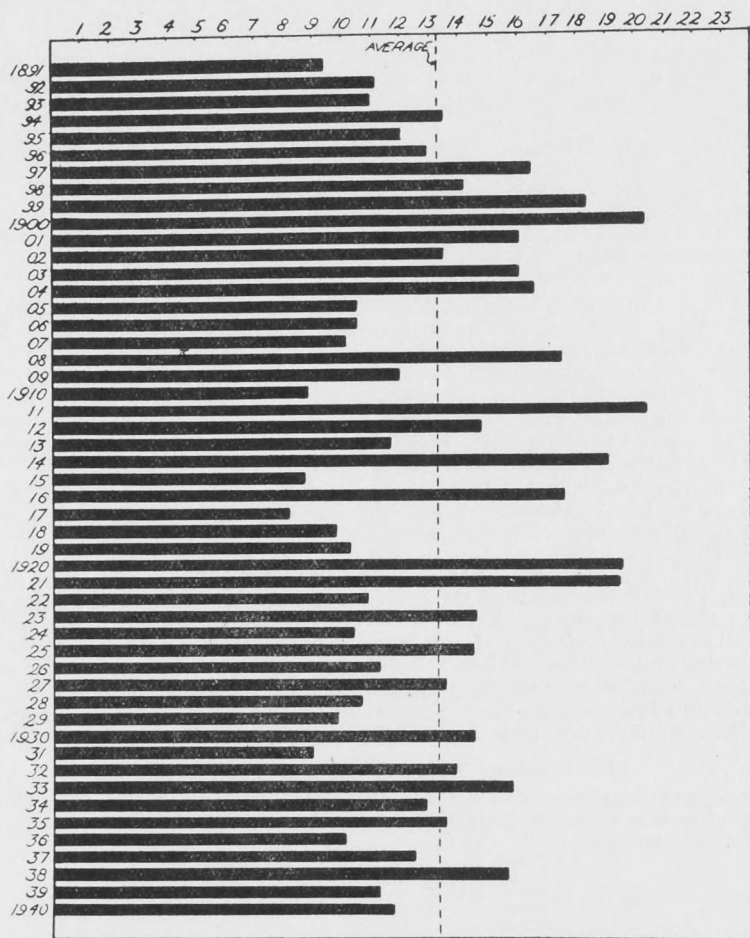


Figure 3. Annual Precipitation at Battleford from 1891 to 1940.

The annual precipitation records at Battleford appear to be divided into three periods. The first of these is from 1891 to 1907 when the average rainfall increased to a peak about 1900 and then declined. The second period is from 1908 to 1921. The rainfall fluctuated widely with the occurrence of dry and wet years among those of average tendency. The third period appears to be from 1921 to the present time. The precipitation was below average with relatively little fluctuation from year to year.

By conserving moisture, therefore, it is possible to increase crop yields, unless we are overtaken by some calamity such as a plague of grasshoppers, a rust epidemic or an unseasonable frost. Some of the practices which were formerly believed to conserve moisture have been found to have detrimental secondary effects which offset the good they were intended to do. Too fine surface cultivation, leading to soil drifting, is such a practice.

But there are certain practices which have stood the test and are fundamentally sound. Among these things, we may emphasize the following:

1. Weed destruction, for weeds use moisture needed by the crops.
2. Humus conservation, for a soil rich in humus holds moisture better than one which is poor in humus.
3. Wind-breaks, for trees, tall growing crops, etc., force the surface winds to hurdle and thus lose force and power to evaporate moisture.
4. Diversification or rotation of crops in order to have some crops ready to take advantage of the rain when it comes, thus getting more benefit from it.

It is not our purpose here to enter into detail regarding methods of carrying out the above suggestions. Every reader will think of ways and means that he can use on his own farm. Some who have trees will plan carefully to keep enough for wind-breaks. Some who do not have trees will plant strips of sun-flowers or corn or caragana hedges at intervals until such time as they can arrange for more permanent wind-breaks. Some will use rotations containing corn, sweet clover, grasses, oats and wheat or winter rye. Many will co-operate with their municipal authorities in the control of weeds. The University Field Husbandry Department, the University Extension Service and the Dominion Experimental Farms are ready at all times to be of any assistance possible to prospective settlers and residents of Saskatchewan in working out the details of successful cropping methods.

The following data will serve as an inventory of the rainfall or water resources of the settled section of Saskatchewan. Whether the best use will be made of these resources or not depends upon us all.

TABLE 1.—AVERAGE PRECIPITATION FOR THE 50-YEAR PERIOD, 1886-1935

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total yearly	Season Apr.-July	Crop Aug.-Oct. Apr.-July
Swift Current.....	.69	.59	.74	.82	1.86	3.02	2.35	1.87	1.27	.80	.56	.68	15.25	8.05	11.99
Grenfell.....	—	—	—	1.19	1.92	3.23	2.36	1.96	1.53	1.03	.90	—	—	8.70	13.22
Qu'Appelle.....	.76	.75	1.09	1.17	2.22	3.58	2.64	2.00	1.64	1.13	1.03	.71	18.72	9.61	14.38
Prince Albert.....	.73	.57	.88	.93	1.50	2.83	2.26	2.25	1.56	.84	.86	.70	15.91	7.52	12.17

TABLE 2.—AVERAGE PRECIPITATION FOR THE 40-YEAR PERIOD, 1896-1935

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total yearly	Season Apr.-July	Crop Aug.-Oct. Apr.-July
Swift Current.....	.68	.54	.74	.73	1.90	3.01	2.42	1.95	1.35	.77	.55	.62	15.26	8.06	12.13
Moose Jaw.....	—	—	—	.69	1.88	3.06	2.01	1.91	1.22	.79	—	—	—	7.64	11.56
Grenfell.....	—	—	—	1.30	1.95	3.26	2.41	1.98	1.27	1.02	.96	—	—	8.75	13.42
Indian Head.....	.77	.64	1.06	.92	2.02	3.57	2.24	2.01	1.77	1.01	.93	.74	17.85	8.92	13.71
Qu'Appelle.....	.84	.74	1.20	1.20	2.35	3.65	2.59	2.16	1.79	1.14	1.09	.77	19.52	9.79	14.88
Prince Albert.....	.73	.56	.93	.98	1.59	2.97	2.42	2.42	1.69	.88	.93	.75	16.85	7.96	12.95
Battleford.....	.54	.39	.56	.72	1.66	2.87	2.12	1.87	1.40	.64	.49	.49	13.75	7.37	11.28

TABLE 3.—AVERAGE PRECIPITATION FOR THE 30-YEAR PERIOD, 1906-1935.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total yearly	Season Apr.-July	Crop Aug.-Oct. Apr.-July
<i>Brown Soil Zone—</i>															
Swift Current.....	.72	.51	.66	.81	1.71	3.14	2.14	1.95	1.23	.84	.53	.68	14.92	7.80	11.82
Chaplin.....	.66	.43	.73	.84	1.89	3.05	2.02	1.97	1.13	.80	.55	.55	14.62	7.80	11.70
<i>Dark Brown Soil Zone—</i>															
Estevan-Midale.....	.82	.55	.84	1.07	2.04	2.94	2.09	1.76	1.26	.89	.78	.70	15.74	8.14	12.05
Regina.....	.60	.43	.76	.76	1.70	3.36	2.22	1.81	1.27	.90	.72	.49	15.02	8.04	12.02
Moose Jaw.....	—	—	—	.77	1.82	3.03	1.92	1.98	1.24	.92	—	—	—	7.54	11.68
Saskatoon.....	.53	.38	.57	.68	1.36	2.79	2.35	1.73	1.46	.83	.47	.39	13.54	7.18	11.20
<i>Grey and Black Soil Zones—</i>															
Grenfell.....	.87	.60	.99	1.44	2.04	3.32	2.33	1.91	1.71	1.16	1.06	.67	18.10	9.13	13.91
Indian Head.....	.87	.65	1.12	.98	2.01	3.25	2.35	2.03	1.58	1.10	.99	.77	17.70	8.59	13.30
Qu'Appelle.....	.84	.62	1.11	1.21	2.19	3.59	2.54	2.15	1.69	1.20	1.10	.80	19.04	9.53	14.57
Muenster.....	.60	.35	.59	.63	1.44	3.34	2.75	1.89	1.44	.73	.50	.50	14.76	8.16	12.22
Prince Albert.....	.68	.48	.80	1.01	1.43	3.05	2.23	2.12	1.63	.87	.81	.73	15.85	7.73	12.35
Battleford.....	.53	.33	.47	.78	1.41	2.72	2.05	1.80	1.43	.66	.44	.52	13.14	6.96	10.85

TABLE 4—AVERAGE PRECIPITATION FOR THE 25-YEAR PERIOD, 1911-1935

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total yearly	Season Apr.-July	Crop Aug.-Oct. Apr.-July
<i>Brown Soil Zone—</i>															
Nashlyn.....	.39	.34	.38	.78	1.44	2.16	1.50	1.08	1.19	.47	.42	.47	10.62	5.88	8.62
Swift Current.....	.76	.48	.69	.82	1.71	2.95	2.21	1.91	1.31	.86	.51	.67	14.88	7.69	11.77
Chaplin.....	.57	.34	.63	.79	1.85	2.88	1.94	1.86	1.16	.88	.42	.38	13.70	7.46	11.36
<i>Dark Brown Soil Zone, West of Third Meridian—</i>															
Saskatoon.....	.51	.40	.60	.74	1.43	2.77	2.29	1.69	1.55	.83	.48	.36	13.65	7.23	11.30
Anglia.....	.68	.33	.61	.69	1.27	2.82	1.92	1.40	1.12	.75	.48	.42	12.49	6.70	9.97
Scott.....	.64	.48	.64	.92	1.32	2.43	2.33	1.73	1.40	.62	.49	.64	13.64	7.00	10.75
Illerburn.....	.52	.45	.49	.72	1.55	2.86	1.95	1.55	1.33	.83	.51	.58	13.34	7.08	10.79
Klintonel.....	.88	.77	1.00	1.25	2.14	3.22	2.06	1.41	1.63	1.02	.70	.84	16.92	8.67	12.73
<i>Dark Brown Soil Zone, East of Third Meridian—</i>															
Estevan-Midale.....	.83	.58	.81	1.05	1.90	3.02	2.24	1.68	1.38	.99	.79	.64	15.91	8.21	12.26
Yellow Grass.....	.68	.52	.80	.96	1.75	2.97	2.16	1.64	1.50	.95	.73	.61	15.27	7.84	11.93
Regina.....	.63	.38	.73	.69	1.65	3.09	2.17	1.71	1.34	.96	.72	.45	14.52	7.60	11.61
Moose Jaw.....	.67	.52	.74	.81	1.78	2.99	1.90	1.93	1.40	1.00	.68	.67	15.09	7.48	11.81
<i>Grey and Black Soil Zones, East of Third Meridian—</i>															
Grenfell.....	.92	.56	.89	1.30	2.00	3.18	2.29	1.91	1.84	1.29	.97	.63	17.78	8.77	13.81
Indian Head.....	.94	.68	1.22	.90	1.95	3.07	2.41	1.88	1.66	1.22	1.00	.72	17.65	8.33	13.09
Qu'Appelle.....	.90	.63	1.12	1.21	2.12	3.37	2.55	2.03	1.82	1.34	1.00	.67	18.67	9.25	14.44
Hubbard.....	.79	.64	.90	.80	1.67	2.77	2.09	2.05	1.67	1.16	.83	.79	16.16	7.33	12.21
Yorkton.....	.62	.38	.63	.68	1.90	2.89	2.59	2.09	1.76	1.10	—	—	—	8.12	13.07
Muenster.....	.63	.35	.66	.78	1.52	2.54	2.67	1.87	1.58	.79	.50	.51	15.30	8.42	12.66
Melfort.....	.63	.35	.66	.78	1.52	2.54	2.57	2.02	1.97	1.00	.73	.49	15.26	7.41	12.40
Prince Albert.....	.65	.38	.84	.99	1.54	2.94	2.29	2.14	1.75	.87	.75	.68	15.82	7.76	12.52
Lost River.....	—	—	—	.72	1.67	2.71	2.47	1.89	2.06	.97	—	—	—	7.57	12.49
The Pas.....	.61	.51	.64	.77	1.36	2.24	2.37	2.07	1.69	1.17	.83	.59	14.85	6.74	11.67
<i>Grey and Black Soil Zones, West of Third Meridian—</i>															
Rosthern.....	.59	.43	.90	.89	1.42	2.52	2.56	1.81	1.58	.86	.63	.65	14.84	7.39	11.64
Battleford.....	.59	.33	.46	.89	1.47	2.56	2.11	1.89	1.47	.72	.43	.50	13.42	7.03	11.11
Waseca.....	.78	.62	.65	.97	1.29	2.50	2.03	1.69	1.41	.64	.65	.60	13.83	6.79	10.53

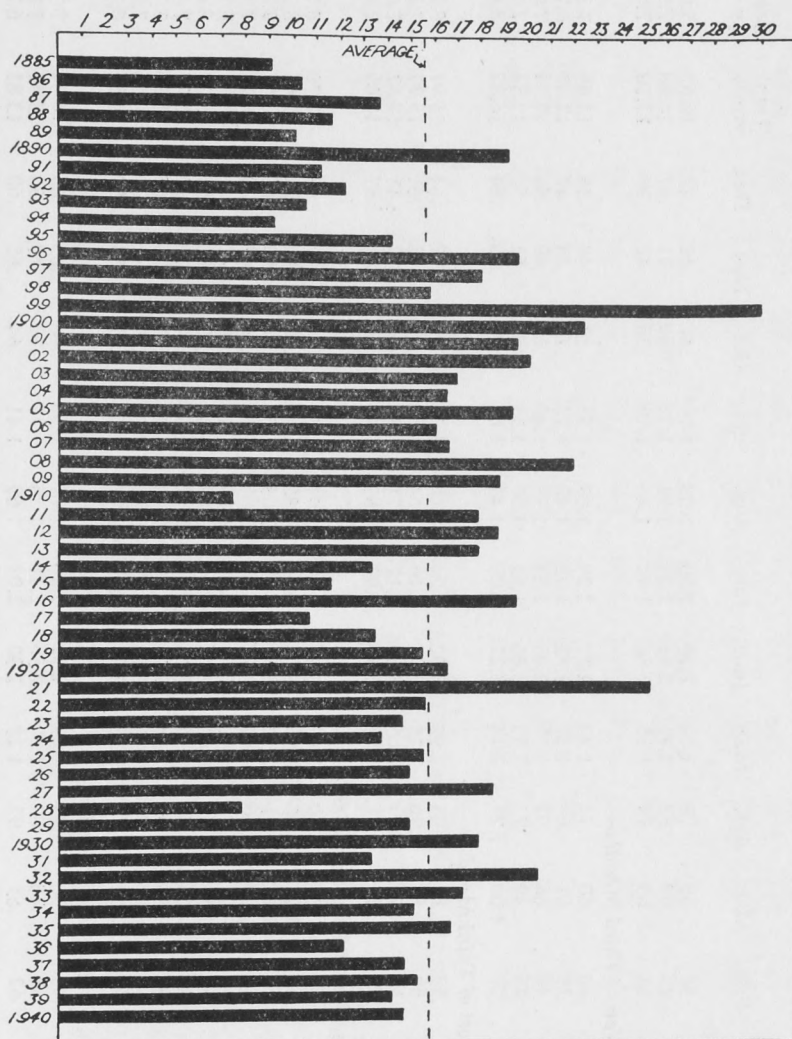


Figure 4. Annual Precipitation at Prince Albert from 1885 to 1940.

From 1885 to 1895 the weather was fairly dry in the Prince Albert area. From 1896 to 1909, precipitation every year was above the long time average. Since 1910 the rainfall has fluctuated widely, with no definite series of years, either dry or wet. The range of fluctuation at Prince Albert is possibly wider than at most other points in the province. The precipitation for the years 1910 and 1928 was about as low, and that for the years 1899 and 1921 about as high, as any annual precipitation recorded in the province. A wide fluctuation from year to year is also apparent.

TABLE 5.—AVERAGE PRECIPITATION FOR THE 20-YEAR PERIOD, 1916-1935

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total yearly	Season Apr.-July	Crop Aug.-Oct. Apr.-July
<i>Brown Soil Zone—</i>															
Nashlyn.....	.35	.36	.41	.90	1.34	2.12	1.47	.96	.97	.40	.44	.48	10.20	5.83	8.16
Swift Current.....	.82	.53	.73	.92	1.63	3.00	2.26	1.98	1.35	.84	.55	.66	15.27	7.81	11.98
Chaplin.....	.58	.38	.71	.87	1.68	2.86	1.92	1.78	1.17	.83	.46	.41	13.65	7.33	11.11
Kindersley.....	—	—	—	.79	1.38	2.15	2.38	1.68	1.12	.69	—	—	—	6.70	10.19
<i>Dark Brown Soil Zone, West of Third Meridian—</i>															
Outlook.....	.74	.49	.66	.56	1.16	2.26	1.74	1.51	1.09	.72	.54	.42	11.89	5.72	9.04
Saskatoon.....	.39	.39	.66	.80	1.35	2.70	2.37	1.61	1.56	.85	.42	.31	13.41	7.22	11.24
Anglia.....	.62	.35	.69	.80	1.22	2.23	1.73	1.47	1.06	.77	.44	.42	11.80	5.98	9.28
Scott.....	.67	.51	.73	.98	1.24	2.36	2.06	1.66	1.27	.57	.53	.66	13.24	6.64	10.14
Illerburn.....	.41	.42	.46	.76	1.54	2.68	1.94	1.53	1.25	.71	.49	.46	12.65	6.92	10.41
Klintonel.....	.90	.82	1.07	1.44	2.06	3.11	2.14	1.44	1.41	.88	.71	.92	16.90	8.75	12.48
<i>Dark Brown Soil Zone, East of Third Meridian—</i>															
Estevan-Midale.....	.91	.70	.88	1.18	1.81	3.17	2.23	1.60	1.38	1.05	.89	.70	16.50	8.39	12.42
Yellow Grass.....	.74	.57	.87	1.06	1.72	3.10	2.10	1.70	1.58	.98	.77	.61	15.80	7.98	12.24
Regina.....	.69	.43	.82	.78	1.57	3.14	2.18	1.60	1.42	1.02	.76	.49	14.90	7.67	11.71
Moose Jaw.....	.68	.60	.82	.92	1.70	3.01	1.73	1.82	1.48	.99	.75	.69	15.19	7.36	11.65
Caron.....	—	—	—	.61	1.65	2.39	2.04	1.69	1.22	.87	—	—	—	6.69	10.47
<i>Grey and Black Soil Zones, East of Third Meridian—</i>															
Whitewood.....	.95	.48	.89	1.22	1.76	3.26	2.18	1.73	1.79	1.22	.94	.66	17.08	8.42	13.16
Grenfell.....	.85	.59	.92	1.35	1.78	3.21	2.14	1.91	1.67	1.32	.86	.66	17.26	8.48	13.38
Indian Head.....	.89	.68	1.34	.98	1.81	3.15	2.31	1.80	1.66	1.22	.99	.74	17.57	8.25	12.93
Qu'Appelle.....	.88	.66	1.24	1.33	1.88	3.41	2.27	1.95	1.83	1.36	1.04	.69	18.54	8.89	14.03
Hubbard.....	.84	.67	1.00	.98	1.61	2.97	1.94	1.88	1.78	1.23	.88	.84	16.62	7.50	12.39
Yorkton.....	—	—	—	.85	1.84	3.06	2.20	1.84	1.81	1.12	—	—	—	7.95	12.72
Kamsack.....	.87	.56	.76	.74	1.43	3.09	2.43	1.94	1.63	.93	.62	.66	15.51	7.69	12.04
Muenster.....	.62	.40	.70	.79	1.61	3.44	2.60	1.65	1.48	.88	.46	.55	15.33	8.44	12.60
Malfort.....	.66	.38	.71	.80	1.56	2.62	2.36	2.11	2.10	1.07	.73	.52	15.62	7.34	12.62
Prince Albert.....	.64	.40	.91	1.09	1.55	3.04	2.04	2.15	2.05	.93	.66	.65	15.81	7.72	12.55
Lost River.....	—	—	—	.72	1.69	2.78	2.21	1.87	2.06	.96	—	—	—	7.40	12.29
The Pas.....	.59	.60	.71	.70	1.35	2.29	2.20	2.10	1.75	1.23	.77	.62	14.91	6.54	11.62
<i>Grey and Black Soil Zones, West of Third Meridian—</i>															
Rosthern.....	.62	.43	1.04	.97	1.35	2.59	2.38	1.82	1.49	.96	.56	.68	14.89	7.29	11.56
Battleford.....	.61	.35	.51	.97	1.37	2.50	1.80	1.86	1.39	.73	.42	.52	13.03	6.64	10.62
St. Walburg.....	.78	.58	.84	.97	1.34	2.66	2.59	2.01	1.31	.67	.58	.56	14.89	7.56	11.55
Waseca.....	.84	.69	.73	1.10	1.22	2.51	1.94	1.81	1.43	.62	.73	.63	14.25	6.77	10.63

TABLE 6.—AVERAGE PRECIPITATION FOR THE 15-YEAR PERIOD, 1921-1935

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total yearly	Season Apr.-July	Crop Aug.-Oct. Apr.-July
<i>Brown Soil Zone—</i>															
Nashlyn.....	.19	.30	.43	1.00	1.41	2.32	1.61	1.01	.95	.34	.51	.44	10.51	6.34	8.64
Maple Creek.....	.60	.37	.61	.77	1.73	2.65	1.96	1.37	1.27	.65	.83	.50	13.31	7.11	10.40
Wapashoe.....	.56	.56	.63	1.21	1.84	2.90	1.57	1.35	1.19	.73	.73	.65	13.92	7.52	10.79
Swift Current.....	.70	.38	.61	.86	1.84	3.30	2.34	2.02	1.42	.79	.62	.66	15.54	8.34	12.57
Chaplin.....	.37	.34	.56	.82	1.76	2.73	1.71	1.85	1.28	.74	.51	.43	13.10	7.02	10.89
Kindersley.....	—	—	—	.82	1.40	2.22	2.15	1.41	1.11	.71	—	—	—	6.59	9.82
<i>Dark Brown Soil Zone, West of Third Meridian—</i>															
Outlook.....	.46	.54	.55	.54	1.32	2.53	1.55	1.23	1.19	.70	.61	.45	11.67	5.94	9.06
Saskatoon.....	.27	.33	.62	.81	1.41	2.99	2.23	1.46	1.63	.79	.45	.31	13.30	7.44	11.32
Anglia.....	.51	.31	.56	.84	1.30	2.45	1.70	1.26	1.01	.69	.52	.44	11.59	6.29	9.25
Biggar.....	—	—	—	.71	1.48	2.98	2.15	1.66	1.31	.46	—	—	—	7.32	10.75
Scott.....	.58	.56	.72	1.07	1.34	2.56	1.99	1.44	1.33	.58	.65	.73	13.55	6.96	10.31
Illerburn.....	.36	.37	.50	.76	1.66	2.91	1.83	1.62	1.33	.63	.57	.45	12.99	7.16	10.74
Klintonel.....	.83	.66	1.03	1.31	2.31	3.60	2.22	1.61	1.36	.71	.79	.88	17.31	9.44	13.12
<i>Dark Brown Soil Zone, East of Third Meridian—</i>															
Midale-Estevan.....	.96	.75	.88	1.21	2.01	3.25	2.45	1.73	1.46	1.13	.95	.70	17.48	8.92	13.24
Yellow Grass.....	.75	.56	.84	.91	1.90	3.38	2.34	1.69	1.66	.91	.93	.64	16.51	8.53	12.79
Regina.....	.65	.41	.83	.78	1.73	3.35	2.03	1.66	1.39	1.00	.89	.54	15.26	7.89	11.94
Moose Jaw.....	.49	.49	.75	.74	1.89	3.20	1.70	1.81	1.61	.88	.87	.66	15.09	7.53	11.83
Caron.....	—	—	—	.60	1.83	2.50	2.17	1.70	1.31	.77	—	—	—	7.10	10.88
<i>Grey and Black Soil Zones, East of Third Meridian—</i>															
Whitewood.....	.87	.44	.83	1.10	1.84	3.33	2.15	1.72	1.74	1.16	1.14	.66	16.98	8.42	13.04
Grenfell.....	.67	.48	.91	1.18	1.83	3.55	2.18	1.90	1.67	1.25	.94	.58	17.14	8.74	13.56
Indian Head.....	.68	.61	1.25	.95	1.90	3.34	2.23	1.77	1.67	1.13	1.15	.72	17.40	8.42	12.99
Qu'Appelle.....	.70	.62	1.17	1.28	1.94	3.67	2.21	1.88	1.73	1.21	1.23	.65	18.29	9.10	13.92
Hubbard.....	.81	.73	1.00	1.04	1.60	3.00	1.90	1.83	1.84	1.12	.97	.81	16.65	7.54	12.33
Yorkton.....	—	—	—	.95	1.81	3.09	2.30	1.77	1.82	1.18	—	—	—	8.15	12.92
Kamsack.....	.80	.52	.65	.83	1.27	3.00	2.70	2.20	1.61	1.04	.72	.60	15.94	7.80	12.65
Muenster.....	.54	.36	.65	.78	1.61	3.74	2.73	1.73	1.81	.91	.53	.61	16.00	8.86	13.31
Melfort.....	.62	.43	.70	.83	1.57	2.88	2.33	2.34	2.45	1.11	.86	.56	16.68	7.61	13.51
Prince Albert.....	.51	.45	.88	1.16	1.53	3.17	2.17	2.08	1.84	.92	.68	.65	16.04	8.03	12.87
Lost River.....	—	—	—	.81	1.47	2.83	2.00	1.86	2.33	.89	.59	—	—	7.11	12.19
The Pas.....	.60	.64	.75	.78	1.18	2.11	2.28	1.89	1.87	1.13	.84	.65	14.72	6.35	11.24

TABLE 6—Continued

Grey and Black Soil Zones, West of Third Meridian—	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total yearly	Season Apr.-July	Crop Aug.-Oct. Apr.-July
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total yearly	Season Apr.-July	Crop Aug.-Oct. Apr.-July
Rosthern.....	.48	.45	.94	.99	1.42	2.78	2.44	1.89	1.60	1.00	.67	.65	15.31	7.63	12.12
Battleford.....	.45	.39	.41	1.02	1.33	2.67	1.84	1.63	1.51	.71	.49	.55	13.00	6.86	10.71
Turtleford.....	.71	.60	.89	1.15	1.77	2.59	2.65	2.16	1.33	.94	.78	.71	16.28	8.16	12.59
St. Walburg.....	.67	.64	.80	.95	1.37	2.59	2.55	2.09	1.21	.68	.63	.57	14.75	7.46	11.44
Waseca.....	.76	.80	.72	1.25	1.25	2.55	1.91	1.71	1.48	.56	.85	.70	14.54	6.96	10.71

TABLE 7—AVERAGE PRECIPITATION FOR THE 10-YEAR PERIOD, 1926-1935

Brown Soil Zone—	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total yearly	Season Apr.-July	Crop Aug.-Oct. Apr.-July
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total yearly	Season Apr.-July	Crop Aug.-Oct. Apr.-July
Ceylon.....	.80	.53	.92	1.15	2.31	2.86	2.13	2.03	1.33	.86	1.06	.85	16.83	8.45	12.67
Assiniboia.....	—	—	—	.54	1.52	3.53	1.31	1.63	1.03	.66	—	—	—	6.90	10.22
Aneroid.....	.44	.14	.56	.58	1.61	2.98	1.32	1.70	1.19	.57	.40	.49	11.98	6.49	9.95
Nashlyn.....	.18	.21	.48	.92	1.40	2.20	1.39	1.08	.89	.42	.57	.52	10.26	5.91	8.30
Maple Creek.....	.67	.38	.61	.68	1.92	2.64	1.84	1.48	1.20	.63	1.02	.60	13.67	7.08	10.39
Wapashoe.....	.52	.51	.48	1.18	2.08	2.84	1.53	1.18	1.06	.69	.74	.71	13.52	7.63	10.56
Swift Current.....	.79	.42	.66	.86	1.77	3.18	2.34	2.17	1.34	.68	.65	.79	15.65	8.15	12.34
Chaplin.....	.32	.34	.62	.65	1.83	2.82	1.47	1.69	1.13	.67	.51	.42	12.47	6.77	10.26
Beechy.....	.49	.39	.62	.71	1.51	2.31	1.62	1.38	1.37	.80	.64	.51	12.35	6.15	9.70
Pennant.....	—	—	.58	.97	1.53	2.98	1.59	1.52	1.34	.45	.46	.63	—	7.07	10.53
Leader.....	.34	.33	.36	.60	1.45	2.12	1.58	.90	1.03	.45	.56	.56	10.28	5.75	8.13
Kindersley.....	—	—	—	.80	1.40	2.23	2.18	.92	1.18	.86	—	—	—	6.61	9.57
Alsask.....	.55	.30	.90	1.26	1.75	1.97	1.82	1.04	1.34	.92	.82	.66	13.33	6.80	10.10
Dark Brown Soil Zone, East of Third Meridian—															
Midale.....	1.12	.77	.93	.93	2.20	2.52	2.41	1.80	1.19	1.11	.89	.66	16.53	8.06	12.16
Yellow Grass.....	.82	.50	.90	.77	1.93	3.06	2.31	1.78	1.45	.88	.79	.66	15.85	8.07	12.18
Francis.....	.54	.44	.68	.49	1.95	3.06	1.79	2.19	1.79	.96	.69	.45	15.03	7.29	12.23
Regina.....	.66	.38	.91	.71	1.84	3.09	1.70	1.65	1.19	.83	.58	.54	14.54	7.34	11.18
Moose Jaw.....	.47	.41	.76	.56	2.11	3.08	1.42	1.91	1.08	.87	.75	.71	14.13	7.17	11.03
Caron.....	.61	.51	.78	.64	1.90	2.62	2.14	1.91	1.23	.89	.74	.53	14.50	7.30	11.33
Strasbourg.....	.81	.41	.86	.60	1.81	3.59	1.89	1.82	1.32	1.02	.91	.64	15.68	7.89	12.05
Nokomis.....	.51	.34	.79	.58	1.68	3.16	1.93	1.24	1.13	.85	.57	.59	13.67	7.35	10.57
Dana.....	.73	.63	.99	.76	2.53	3.79	2.30	1.12	2.10	1.13	.72	.89	17.69	9.38	13.73

TABLE 7—Continued

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total yearly	Season Apr.-July	Crop Aug.-Oct. Apr.-July
<i>Dark Brown Soil Zone, West of Third Meridian—</i>															
Tugaske.....	.66	.45	1.12	.46	1.64	2.90	1.57	1.69	1.30	.76	.84	.94	14.33	6.57	10.32
Davidson.....	.26	.21	.57	.60	1.50	2.68	2.02	1.14	1.31	.71	.38	.45	11.83	6.80	9.96
Outlook.....	.45	.32	.44	.51	1.22	2.65	1.73	.92	1.26	.61	.52	.49	11.12	6.11	8.90
Dundum.....	.50	.40	.72	.67	1.32	2.98	1.88	1.21	1.62	.89	.76	.42	13.37	6.85	10.57
Saskatoon.....	.22	.23	.52	.73	1.28	2.80	2.30	1.16	1.57	.75	.44	.31	12.31	7.11	10.59
Anglia.....	.54	.22	.56	.68	1.22	1.88	1.65	.97	1.10	.62	.54	.45	10.43	5.43	8.12
Biggar.....	—	—	—	.71	1.43	2.79	2.11	1.39	1.44	.39	—	—	—	7.04	10.26
Scott.....	.64	.45	.74	1.00	1.31	2.62	2.02	1.24	1.26	.63	.75	.83	13.49	6.95	10.08
Klintonel.....	.84	.54	.63	.96	2.31	3.50	1.98	1.51	1.27	.63	.88	.84	15.89	8.75	12.16
Illeburn.....	.26	.36	.43	.50	1.86	2.76	1.72	1.60	1.40	.53	.57	.40	12.39	6.84	10.37
<i>Grey and Black Soil Zone, West of Third Meridian—</i>															
Rosthern.....	.40	.37	1.08	.90	1.30	3.02	2.46	1.45	1.44	1.06	.70	.86	15.04	7.68	11.63
Battleford.....	.45	.39	.41	1.02	1.33	2.67	1.84	1.63	1.51	.71	.49	.55	13.00	6.86	10.71
Turtleford.....	.66	.48	.89	.96	1.49	2.89	3.08	2.00	1.51	.96	.83	.85	16.60	8.42	12.89
St. Walburg.....	.62	.44	.72	.92	1.10	3.03	2.86	1.67	1.46	.57	.70	.69	14.78	7.91	11.61
Waseca.....	.58	.41	.70	1.05	1.23	2.81	2.14	1.30	1.67	.56	.95	.72	14.12	7.23	10.76
<i>Grey and Black Soil Zone, East of Third Meridian—</i>															
Carlyle.....	.63	.64	.81	1.07	1.94	2.59	2.82	2.02	1.15	1.06	.93	.56	16.22	8.42	12.65
Whitewood.....	.68	.35	.85	.98	1.95	3.23	1.99	1.74	1.53	1.09	.97	.73	16.09	8.15	12.51
Grenfell.....	.56	.28	.76	.83	2.11	3.17	1.89	2.11	1.60	1.26	.87	.54	15.98	8.00	12.97
Indian Head.....	.64	.39	1.04	.84	2.01	2.97	1.91	1.88	1.44	1.13	1.07	.68	16.00	7.73	12.18
Qu'Appelle.....	.66	.45	.92	1.00	2.07	3.15	1.83	1.81	1.66	1.20	1.15	.60	16.50	8.05	12.72
Hubbard.....	.75	.64	1.02	.98	1.80	2.58	1.73	1.81	1.78	1.09	.92	.86	15.96	7.09	11.77
Yorkton.....	—	—	—	.85	2.02	2.96	2.48	1.62	1.66	1.06	—	—	—	8.31	12.65
Kamsack.....	.71	.29	.68	.72	1.23	2.91	2.21	2.00	1.59	1.04	.71	.60	14.69	7.07	11.70
Lintlaw.....	.55	.35	1.09	.85	1.85	3.23	2.68	1.70	2.22	1.23	.74	.77	17.26	8.61	17.76
Muenster.....	.48	.31	.57	.69	1.57	3.48	2.35	1.46	1.90	.92	.53	.64	14.90	8.09	12.37
Melfort.....	.58	.50	.65	.86	1.50	2.94	2.38	2.14	2.58	1.17	.92	.57	16.79	7.68	13.57
Prince Albert.....	.44	.37	.80	1.02	1.46	3.18	2.22	1.64	1.97	.98	.71	.81	15.60	7.88	12.47
Lost River.....	.44	.38	.61	.79	1.47	2.72	2.08	1.69	2.43	1.02	.62	.52	14.77	7.06	12.20
The Pas.....	.64	.56	.88	.71	1.32	2.22	2.28	1.73	1.76	1.41	.97	.80	15.28	6.53	11.43

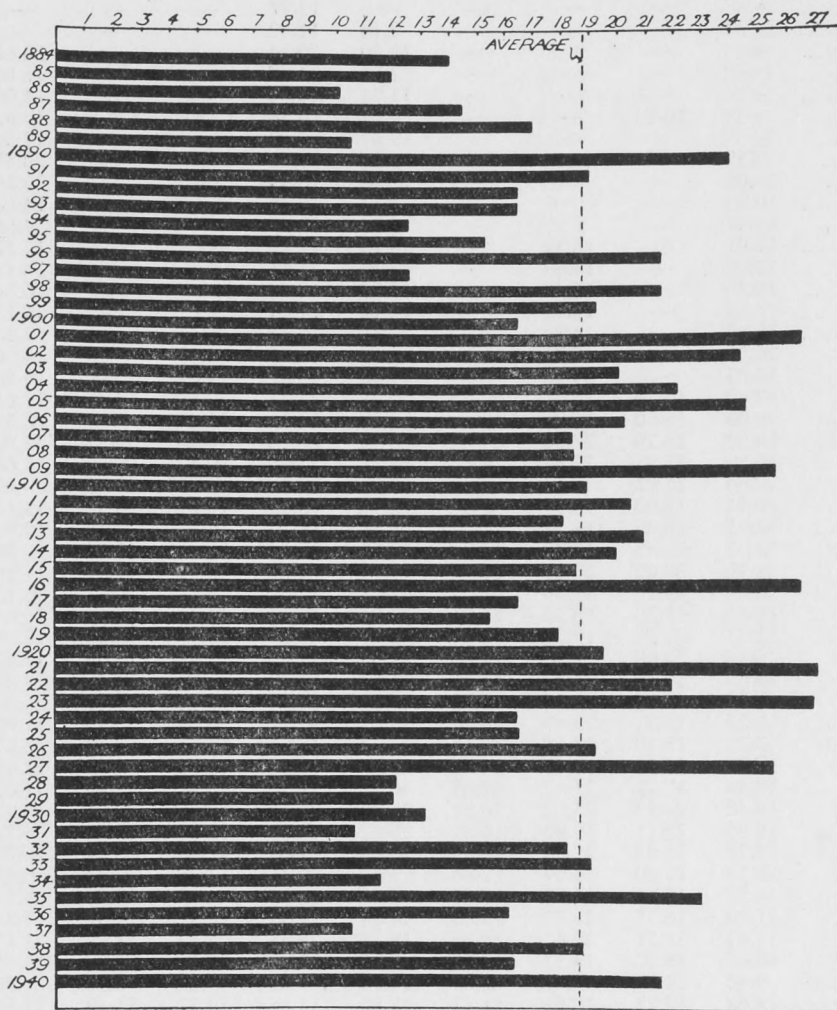


Figure 5. Annual Precipitation at Qu'Appelle from 1884 to 1940.

From 1884 to 1897 there was a series of relatively dry years in the Qu'Appelle district. The rainfall reached the 56 year average in only three years during this period. From 1898 to 1916 the rainfall was decidedly above average, from 1917 to 1927 it was more variable, but generally above the average, while from 1928 to 1940 it was decidedly below the average. The relatively dry period from 1928 to 1940, in many respects, resembles the one from 1884 to 1897. Since the dry periods are recurring, a return of wet periods may also be expected. It must be kept in mind, however, that the amount of moisture which fell in the driest year recorded at Qu'Appelle is about equal to the average precipitation at Nashlyn in the extreme south-western corner of the province.

TABLE 8.—TOTAL ANNUAL PRECIPITATION AT 36 STATIONS

Year	Battle- ford	Gren- fell	Indian Head	Moose Jaw	Prince Albert	Qu'- Appelle	Regina	Saska- toon	Swift Current
1884.....	—	—	—	—	—	13.97	—	—	—
1885.....	—	—	—	—	9.14	11.92	—	—	—
1886.....	—	—	—	—	10.30	10.14	—	—	10.62
1887.....	—	—	—	—	13.67	14.47	—	—	18.00
1888.....	—	—	—	—	11.71	17.00	—	—	14.09
1889.....	—	10.04	—	—	9.97	10.54	—	—	10.46
1890.....	—	—	—	—	19.07	23.97	—	—	17.50
1891.....	9.35	—	17.11	—	11.25	19.02	—	—	24.55
1892.....	11.06	—	—	—	12.06	16.45	—	—	20.30
1893.....	10.93	—	—	—	10.53	16.35	—	—	14.54
1894.....	13.47	—	—	—	9.24	12.46	—	—	9.66
1895.....	12.01	—	15.12	—	14.14	15.29	—	—	12.33
1896.....	12.93	—	14.89	—	19.64	21.63	—	—	14.11
1897.....	16.49	—	16.40	—	18.03	12.64	—	—	16.24
1898.....	14.25	—	20.83	—	15.74	21.65	—	—	15.25
1899.....	18.42	—	14.34	—	29.88	19.27	—	—	19.38
1900.....	20.37	—	15.36	—	22.40	16.52	11.81	—	14.60
1901.....	16.07	—	23.26	—	19.46	26.47	19.02	—	18.58
1902.....	13.49	16.76	16.01	—	20.01	24.37	—	14.76	17.64
1903.....	16.06	15.50	18.95	—	16.88	20.09	16.89	—	18.38
1904.....	16.60	18.79	20.09	—	16.60	22.22	14.94	19.51	12.84
1905.....	10.55	17.95	22.82	—	19.27	24.55	19.22	10.85	15.68
1906.....	10.64	21.62	17.59	—	15.05	20.29	23.71	13.45	19.02
1907.....	10.11	17.00	17.41	—	16.54	18.53	13.81	10.38	13.17
1908.....	17.51	16.85	18.27	—	22.15	18.59	15.81	14.15	12.60
1909.....	12.02	23.45	19.37	18.94	18.73	25.75	20.29	15.88	19.26
1910.....	8.75	20.03	17.20	12.60	7.40	19.02	13.81	11.09	11.16
1911.....	20.47	21.74	23.68	16.25	17.93	20.61	18.54	19.42	14.13
1912.....	14.84	19.26	16.38	14.03	18.69	18.06	10.68	16.69	14.04
1913.....	11.73	21.85	19.71	14.94	17.92	21.24	13.97	13.45	12.55
1914.....	19.14	20.09	13.85	14.55	13.35	19.77	11.98	12.66	12.47
1915.....	8.69	16.40	16.82	13.70	11.62	18.67	9.90	10.48	14.27
1916.....	17.73	22.34	22.64	16.53	19.52	26.54	23.04	17.41	23.98
1917.....	8.20	16.31	13.49	14.70	10.61	16.69	8.69	10.26	11.85
1918.....	9.76	15.28	14.31	14.16	13.44	15.53	11.21	12.59	12.27
1919.....	10.26	16.94	17.48	14.41	15.36	17.92	11.66	13.53	12.33
1920.....	19.64	17.25	21.47	17.65	16.46	19.72	14.51	15.20	11.56
1921.....	19.48	24.73	25.02	20.81	25.37	27.19	20.13	21.01	14.93
1922.....	10.95	22.21	19.40	16.81	15.62	22.03	14.38	11.40	14.27
1923.....	14.70	21.58	26.00	16.95	14.63	27.05	20.01	18.84	16.38
1924.....	10.38	13.00	13.69	12.86	13.67	16.45	12.82	9.29	16.73
1925.....	14.59	15.65	16.82	17.41	15.35	16.70	16.31	15.86	14.33
1926.....	11.30	16.35	18.73	15.44	14.80	19.30	16.51	13.57	15.88
1927.....	13.63	21.71	22.67	14.88	18.47	25.55	22.53	17.02	21.13
1928.....	10.66	15.02	14.53	12.15	7.75	12.07	12.16	12.87	11.55
1929.....	9.82	14.09	13.47	10.08	14.85	12.05	11.03	8.84	14.86
1930.....	14.64	12.72	10.51	11.47	17.80	13.16	10.32	11.49	13.54
1931.....	8.94	11.41	9.15	12.49	13.20	10.72	10.28	11.64	11.87
1932.....	13.86	18.68	18.19	17.53	20.35	18.34	15.72	10.11	19.04
1933.....	15.79	17.78	20.66	18.53	17.09	19.21	17.54	9.77	17.89
1934.....	12.86	10.23	10.66	10.46	15.03	11.55	11.50	9.93	11.36
1935.....	13.55	21.90	21.52	18.30	16.65	23.06	17.75	17.77	17.34
1936.....	10.25	16.50	13.81	12.77	12.04	16.25	12.38	11.34	11.70
1937.....	12.48	11.79	10.32	9.03	14.55	10.54	9.41	10.74	8.31
1938.....	15.80	22.30	14.50	15.40	15.10	19.00	14.60	17.90	14.20
1939.....	11.30	15.20	12.40	12.40	14.20	16.60	13.70	15.80	15.30
1940*.....	9.01	16.50	15.59	11.44	10.44	19.54	12.94	10.72	11.10
Average to 1939.....	13.39	16.90	17.12	14.51	15.64	18.76	15.00	13.83	15.03

*1940 data cover the period to November 1st.

TABLE 8—Continued

Year	Aneroid	Anglia	Carlyle	Caron	Ceylon	Chaplin	David-son	Estevan-Midale	Francis
1903.....	—	—	—	—	—	—	—	21.68	—
1904.....	—	—	—	—	—	—	—	9.95	—
1905.....	—	—	—	—	—	—	—	19.35	—
1906.....	—	—	—	—	—	19.51	—	13.09	—
1907.....	—	—	—	—	—	24.08	—	15.45	—
1908.....	—	—	—	—	—	15.11	—	18.39	—
1909.....	—	—	—	—	—	22.13	—	12.49	—
1910.....	—	—	—	—	—	16.08	—	15.34	—
1911.....	—	21.71	—	—	—	15.51	—	15.54	—
1912.....	—	—	—	—	—	16.24	—	15.61	—
1913.....	—	—	—	—	—	9.91	—	—	—
1914.....	—	15.53	—	—	—	12.74	—	10.84	—
1915.....	—	13.89	—	12.26	—	14.92	—	12.37	—
1916.....	—	20.69	—	12.93	—	21.60	—	14.74	—
1917.....	—	7.62	—	9.76	—	11.41	—	11.87	—
1918.....	—	9.47	—	—	—	12.68	—	10.86	—
1919.....	—	13.60	—	12.10	—	13.81	—	14.63	—
1920.....	—	11.08	—	17.88	—	16.74	—	15.62	—
1921.....	—	13.39	—	19.43	—	15.91	—	21.48	—
1922.....	—	15.31	—	—	—	10.95	—	17.78	—
1923.....	16.77	16.66	22.71	—	26.78	15.72	16.84	22.37	16.79
1924.....	13.06	11.81	22.46	—	23.83	18.12	10.14	18.55	12.49
1925.....	13.00	12.35	18.81	—	21.76	11.22	15.36	16.20	16.94
1926.....	12.24	7.50	19.53	11.22	23.84	14.16	13.74	19.01	18.25
1927.....	17.11	19.59	22.67	27.11	31.03	18.32	12.40	24.61	22.56
1928.....	11.30	12.84	13.58	10.47	15.56	11.68	14.54	14.07	10.74
1929.....	9.80	11.97	14.38	9.92	16.40	8.46	5.98	14.48	10.44
1930.....	11.31	11.77	14.40	11.30	13.12	10.48	10.19	14.99	11.84
1931.....	7.74	7.60	13.86	10.56	10.46	9.05	10.93	11.07	11.16
1932.....	12.93	8.45	20.26	15.20	—	17.16	9.66	20.05	15.55
1933.....	13.28	8.80	13.50	18.07	21.22	11.88	14.65	17.53	22.88
1934.....	10.34	5.95	10.93	12.64	6.68	9.66	10.18	11.83	7.95
1935.....	13.83	9.80	19.24	18.53	14.49	13.89	16.10	17.88	18.71
1936.....	9.10	6.72	9.45	12.56	11.46	9.52	11.85	14.37	11.61
1937.....	8.44	8.82	11.20	11.60	12.17	—	7.41	13.10	10.84
1938.....	15.70	14.21	17.30	16.50	17.22	—	18.50	16.60	10.55
1939.....	14.59	12.34	10.70	13.60	12.84	—	14.56	8.20	9.60
1940*....	15.25	11.89	18.87	14.26	22.68	—	10.74	15.60	—
Average to 1939..	12.32	12.20	16.29	13.59	17.54	14.31	12.53	15.60	13.86

*1940 data cover the period to November 1st.

Year	Hubbard	Illerburn	Kamsack	Klintonel	Maple Creek	Melfort	Muenster	Nashlyn	Outlook
1908.....	12.87	—	—	—	—	—	—	—	—
1909.....	19.24	—	17.48	—	—	—	14.09	—	—
1910.....	14.45	—	—	—	—	12.85	7.84	—	—
1911.....	14.46	20.54	—	—	—	17.75	11.70	15.15	—
1912.....	17.53	15.01	—	11.20	—	19.50	20.00	—	—
1913.....	16.82	14.63	16.24	12.21	—	12.89	19.56	13.08	—
1914.....	10.20	13.37	—	14.68	—	8.65	10.41	10.35	—
1915.....	13.06	16.54	—	24.98	—	10.50	14.30	13.82	—
1916.....	21.92	19.75	—	23.76	—	21.07	15.93	14.89	—
1917.....	11.10	7.35	12.72	16.37	—	8.76	9.96	9.14	7.65
1918.....	15.73	7.23	18.21	10.61	—	11.07	10.14	5.91	8.25
1919.....	15.50	8.14	16.93	10.05	—	11.87	18.59	7.58	11.52
1920.....	17.72	15.61	11.52	17.26	—	9.18	12.03	9.11	—
1921.....	28.88	13.58	36.61	21.33	—	15.90	20.65	11.33	16.85

TABLE 8—Continued

Year	Hubbard	Illerburn	Kamsack	Klintonel	Maple Creek	Melfort	Muenster	Nashlyn	Outlook
1922.....	16.39	12.61	15.05	18.82	—	15.22	17.70	10.24	11.12
1923.....	17.63	15.69	11.54	20.94	—	18.20	32.97	9.98	—
1924.....	13.47	15.49	11.72	19.75	11.90	12.48	7.48	9.22	10.07
1925.....	14.16	13.99	17.21	20.22	12.50	20.60	12.33	14.35	15.15
1926.....	16.63	10.22	15.30	14.03	10.12	16.32	15.84	10.23	11.39
1927.....	21.97	20.88	19.44	23.00	25.35	21.19	22.65	17.51	—
1928.....	11.00	11.81	12.51	13.91	—	8.53	10.61	7.37	8.11
1929.....	12.73	12.19	9.19	18.83	14.26	15.61	—	11.34	9.68
1930.....	13.20	12.84	14.36	13.89	12.90	19.99	15.91	9.23	11.16
1931.....	11.54	10.65	11.26	14.86	9.79	13.44	11.35	7.91	11.45
1932.....	16.67	12.62	17.77	18.57	17.78	21.07	15.76	10.56	10.92
1933.....	24.31	13.60	17.45	17.82	14.39	19.42	12.71	11.37	11.20
1934.....	11.71	7.93	11.72	11.12	9.39	16.82	11.61	7.07	7.15
1935.....	19.91	11.04	17.81	12.77	9.80	15.51	18.92	9.83	13.17
1936.....	14.02	7.77	18.19	10.99	9.80	11.86	10.24	7.72	7.57
1937.....	12.80	6.59	13.97	11.26	10.93	14.33	—	10.84	7.60
1938.....	18.27	—	20.30	19.00	17.19	—	—	13.09	11.90
1939.....	14.22	—	14.99	20.41	20.66	13.50	—	14.55	12.40
1940*....	14.61	—	9.15	17.77	16.82	11.97	—	13.91	9.37

Average

to 1939.. 15.95 12.93 15.64 16.61 14.28 15.06 14.65 10.75 11.55

*1940 data cover the period to November 1st.

Year	Rosthern	Scott	St. Walburg	The Pas	Turtleford	Wapashoe	Waseca	White-wood	Yellow Grass
1908.....	—	—	—	—	—	—	16.70	—	—
1909.....	—	—	—	—	—	—	10.40	—	—
1910.....	—	—	—	—	—	—	9.54	—	—
1911.....	16.64	—	—	18.89	—	17.23	13.32	—	—
1912.....	18.53	17.59	—	16.36	—	11.15	16.13	—	—
1913.....	15.22	11.64	—	14.39	—	10.58	8.51	—	—
1914.....	12.62	18.05	—	15.01	—	12.12	13.26	—	11.59
1915.....	10.18	10.46	—	8.60	—	16.15	9.74	15.45	13.24
1916.....	15.06	20.78	19.14	17.86	—	17.85	22.57	18.42	19.78
1917.....	14.47	7.37	—	12.43	—	10.45	7.94	16.35	11.50
1918.....	13.12	6.59	—	16.56	—	—	6.12	15.03	13.66
1919.....	11.98	11.18	17.79	15.18	—	—	14.80	18.18	10.31
1920.....	13.29	15.52	—	—	—	—	16.05	19.02	12.84
1921.....	20.47	13.50	15.86	—	21.06	—	15.61	23.15	19.35
1922.....	13.11	10.42	14.83	13.13	13.17	16.12	15.12	20.04	16.20
1923.....	14.46	15.03	14.63	11.94	16.95	15.67	16.55	20.26	19.36
1924.....	13.44	12.57	13.67	13.49	12.05	12.03	13.38	16.81	14.83
1925.....	17.85	16.85	14.13	17.74	15.05	14.76	15.76	13.23	19.28
1926.....	12.18	13.57	14.36	13.32	18.92	10.31	14.08	18.08	19.27
1927.....	22.67	14.89	17.72	14.02	22.14	23.67	19.45	20.32	18.30
1928.....	10.13	10.93	10.36	9.34	11.89	12.93	7.75	16.30	12.14
1929.....	13.50	9.98	11.60	11.43	14.52	13.27	8.67	13.63	13.95
1930.....	16.23	12.06	22.93	18.86	20.40	13.14	—	13.48	15.02
1931.....	14.85	12.60	18.88	14.93	18.83	8.51	15.92	9.75	14.00
1932.....	15.33	15.96	12.01	15.94	14.98	15.59	—	16.30	18.95
1933.....	16.00	14.57	14.07	17.55	19.06	16.02	17.57	20.55	18.83
1934.....	13.14	15.27	10.09	—	10.03	10.07	9.86	8.83	9.02
1935.....	16.22	15.13	15.81	16.37	15.07	11.46	12.43	23.62	19.12
1936.....	10.34	10.50	9.41	20.05	15.03	9.78	8.68	13.18	12.06
1937.....	15.40	15.64	15.02	19.02	13.99	8.24	10.35	11.75	10.78
1938.....	17.35	17.20	15.18	13.26	15.89	14.68	12.50	16.70	13.60
1939.....	14.82	13.60	12.25	13.80	16.16	17.40	14.90	11.30	13.40
1940*....	—	12.66	9.27	—	11.60	13.94	13.87	13.47	15.81

Average

to 1939.. 14.78 13.72 14.40 15.18 16.20 13.58 13.48 16.36 14.88

*1940 data cover the period to November 1st.

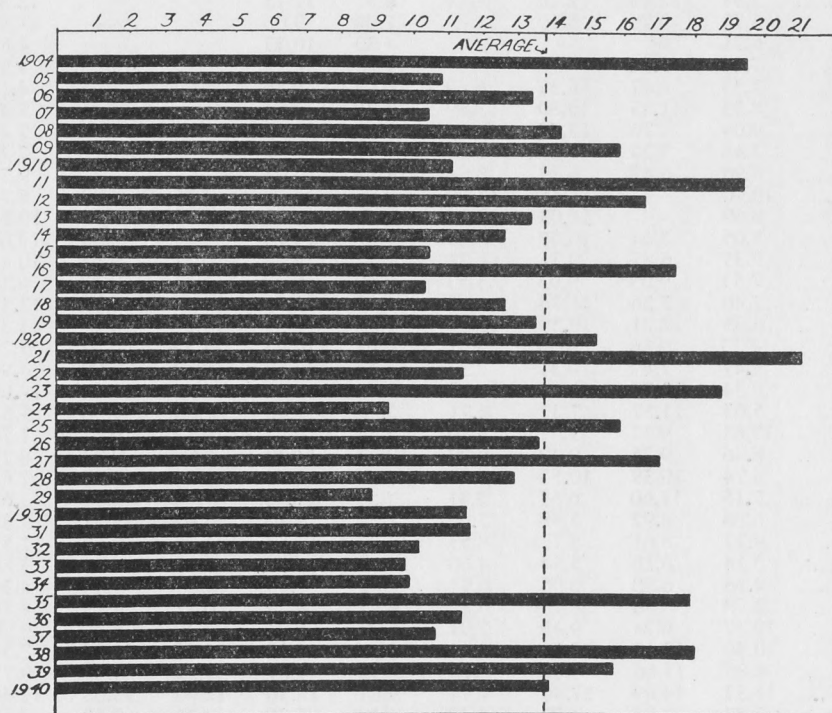


Figure 6. Annual Precipitation at Saskatoon from 1904 to 1940.

There is considerable fluctuation in the annual rainfall at Saskatoon. Except in the drought period from 1929 to 1937, the dry years have usually occurred between two more favorable years and so have not severely lowered crop yields, when good farming methods were used.

TABLE 9.—TOTAL SEASONAL (April to July) PRECIPITATION at 36 STATIONS

Year	Battle- ford	Gren- fell	Indian Head	Moose Jaw	Prince Albert	Qu-' Appelle	Regina	Saska- toon	Swift Current
1883.....	—	—	—	—	—	4.38	—	—	—
1884.....	—	6.51	—	—	—	6.85	—	—	—
1885.....	—	6.55	—	—	5.03	6.18	—	—	—
1886.....	—	6.51	—	—	2.87	6.23	—	—	6.09
1887.....	—	9.00	—	—	8.63	8.24	—	—	10.71
1888.....	—	7.58	—	—	8.03	10.39	—	—	6.90
1889.....	—	5.26	—	—	3.36	5.71	—	—	7.15
1890.....	—	12.87	—	—	8.05	12.70	—	—	6.36
1891.....	5.51	12.49	12.20	—	4.35	12.15	—	—	12.84
1892.....	5.73	9.70	5.10	—	7.07	9.06	—	—	11.50
1893.....	6.91	—	—	—	4.80	10.33	—	—	4.87
1894.....	7.15	5.28	—	—	4.28	4.72	—	—	5.56
1895.....	7.35	8.47	10.37	6.40	6.04	9.56	—	—	8.15
1896.....	8.33	11.45	10.80	8.89	11.26	14.34	—	—	5.49
1897.....	9.04	3.76	12.72	11.63	6.92	7.22	—	—	7.44
1898.....	7.48	5.20	9.25	5.54	4.91	8.22	—	—	7.28
1899.....	8.90	6.42	8.29	8.84	12.22	10.04	—	—	9.77
1900.....	10.90	—	3.45	12.05	8.59	4.30	3.75	4.02	6.71
1901.....	8.69	—	14.03	9.84	10.18	14.70	14.88	7.75	10.88
1902.....	8.05	7.64	10.37	8.69	11.82	13.75	9.29	9.25	12.00
1903.....	9.35	6.85	9.71	11.91	7.52	9.97	10.31	9.84	10.45
1904.....	7.53	9.03	9.03	5.53	8.79	9.43	5.46	9.23	6.19
1905.....	7.40	7.36	11.74	14.48	4.65	13.56	10.85	6.12	12.35
1906.....	6.35	12.21	10.59	12.07	7.02	11.05	13.22	6.29	11.38
1907.....	4.23	9.86	9.60	5.01	6.98	10.42	8.22	4.45	5.29
1908.....	9.47	7.47	10.31	2.32	11.12	8.77	8.47	7.99	4.90
1909.....	8.34	13.75	11.67	13.13	9.84	15.26	14.06	10.44	14.09
1910.....	5.03	11.57	7.37	6.71	2.80	9.40	7.36	5.48	5.54
1911.....	13.63	9.11	11.37	8.80	7.26	9.91	10.42	10.88	7.75
1912.....	8.36	9.71	9.40	8.77	10.12	11.40	5.98	9.27	8.28
1913.....	6.74	10.39	10.53	6.82	7.70	11.40	7.54	5.69	7.61
1914.....	7.15	11.60	6.65	7.41	7.04	11.58	7.80	4.78	3.65
1915.....	6.86	8.92	5.98	7.96	7.34	9.10	5.00	5.52	9.38
1916.....	9.27	8.61	8.72	8.53	12.07	10.63	11.75	10.58	11.55
1917.....	3.14	8.16	5.54	4.60	4.41	6.08	4.02	4.09	3.86
1918.....	4.18	6.88	6.06	6.93	6.82	7.23	5.75	7.44	4.36
1919.....	2.58	8.58	8.10	6.22	4.47	9.33	6.11	5.41	4.16
1920.....	10.67	6.24	9.45	7.91	6.31	8.04	7.40	5.50	6.90
1921.....	10.30	12.62	13.01	9.13	12.86	14.32	11.58	11.08	7.30
1922.....	4.06	11.66	8.67	8.18	7.35	9.87	7.32	4.49	9.75
1923.....	11.32	14.69	17.40	9.74	9.01	18.10	12.70	13.63	12.40
1924.....	2.53	4.55	4.33	4.47	4.04	5.38	4.16	2.69	7.57
1925.....	7.35	7.55	5.47	9.70	8.37	8.39	9.25	8.56	6.58
1926.....	5.20	7.15	7.65	5.97	6.69	8.27	7.45	7.19	7.60
1927.....	8.66	9.76	10.57	7.77	8.65	11.23	10.69	10.21	12.32
1928.....	7.67	11.27	11.00	9.09	4.52	8.88	9.64	9.86	8.64
1929.....	5.97	6.44	4.81	3.54	7.60	3.97	4.31	5.82	7.34
1930.....	8.81	8.00	5.20	5.39	7.88	7.57	5.45	6.37	6.96
1931.....	2.46	3.42	3.28	5.15	4.99	3.74	4.80	5.84	4.53
1932.....	8.38	8.70	8.21	9.93	12.50	8.74	7.02	5.69	10.84
1933.....	5.44	8.70	9.85	9.44	7.32	9.43	8.62	4.27	6.77
1934.....	8.14	4.68	4.99	5.73	10.07	6.55	5.56	6.28	6.80
1935.....	6.66	11.93	11.78	9.67	8.51	12.07	9.84	9.52	9.71
1936.....	3.86	7.57	5.49	7.51	3.99	7.25	6.34	5.11	4.99
1937.....	6.74	5.20	3.78	4.84	6.12	3.38	4.71	3.26	2.59
1938.....	5.10	8.10	4.70	6.80	4.60	6.90	6.10	5.80	5.40
1939.....	6.90	6.60	6.70	7.50	7.60	8.80	8.40	9.50	11.50
1940.....	5.70	8.70	6.90	7.10	6.10	9.40	6.20	6.30	7.00
Average	7.11	8.49	8.56	7.52	7.31	9.54	8.00	7.12	7.88

TABLE 9—Continued

Year	Anglia	Carlyle	Caron	Ceylon	Chaplin	Estevan- Midale	Hub- bard	Iller- burn	Kam- sack
1903.....	—	—	—	—	—	9.29	—	—	—
1904.....	—	—	—	—	—	3.45	—	—	—
1905.....	—	—	—	—	—	11.79	—	—	—
1906.....	—	—	—	—	10.20	7.19	—	—	—
1907.....	—	—	—	—	10.65	4.21	—	—	—
1908.....	—	—	—	—	6.42	10.15	6.38	—	—
1909.....	—	—	—	—	13.91	9.58	14.34	—	11.59
1910.....	3.65	—	—	—	6.83	7.99	8.37	—	9.76
1911.....	15.86	—	—	—	9.79	7.54	5.75	8.49	—
1912.....	—	—	—	—	8.90	8.74	9.79	7.57	—
1913.....	9.61	—	—	—	5.26	8.04	6.56	7.14	8.63
1914.....	5.89	—	—	—	5.06	5.06	3.38	3.76	3.57
1915.....	10.79	—	8.11	—	10.67	8.40	7.85	11.22	10.75
1916.....	10.83	—	6.36	—	11.67	8.07	12.34	11.94	5.78
1917.....	2.79	—	4.40	—	6.21	5.82	4.60	2.88	7.84
1918.....	3.99	—	—	—	6.30	3.49	7.10	2.98	10.06
1919.....	3.15	—	4.72	—	7.49	8.22	6.57	3.82	9.41
1920.....	4.50	—	6.53	—	9.59	8.25	5.80	9.48	3.81
1921.....	7.84	—	10.77	—	5.61	13.58	14.58	6.56	21.73
1922.....	7.65	—	6.00	9.80	6.34	11.25	6.65	6.82	5.66
1923.....	12.16	9.44	6.07	15.32	9.48	14.25	12.33	11.67	6.99
1924.....	5.46	10.04	1.92	10.35	9.31	7.16	3.52	7.56	3.48
1925.....	6.93	9.67	8.88	9.48	6.87	6.93	5.27	6.43	8.56
1926.....	3.14	8.94	3.83	9.07	5.67	8.64	6.08	3.96	5.38
1927.....	10.71	10.47	18.93	13.35	10.40	9.10	9.45	12.73	8.82
1928.....	7.93	10.14	7.57	12.42	9.70	10.61	7.64	9.05	7.56
1929.....	7.25	7.48	4.05	4.78	3.41	6.95	3.69	6.22	4.02
1930.....	6.29	8.68	5.01	6.96	5.92	7.27	5.36	5.53	8.17
1931.....	2.78	5.39	3.58	5.18	3.56	5.69	3.86	3.99	4.14
1932.....	4.34	10.97	6.77	8.88	10.14	8.20	6.87	7.15	6.94
1933.....	3.02	5.22	7.43	12.23	5.52	8.65	10.22	7.25	9.87
1934.....	3.15	4.36	6.77	2.78	6.12	5.18	6.48	4.56	5.58
1935.....	5.69	12.67	9.02	8.90	7.22	10.36	11.34	7.91	10.16
1936.....	2.60	2.95	6.63	5.79	4.90	6.56	5.98	2.89	8.80
1937.....	5.02	5.55	5.36	6.10	4.55	3.00	4.44	2.03	5.14
1938.....	6.31	7.50	6.90	9.10	5.10	6.30	8.58	5.11	9.80
1939.....	7.59	5.00	8.10	7.70	7.40	4.10	6.97	13.10	9.19
1940.....	8.93	11.10	8.80	14.52	6.60	8.00	8.17	7.43	4.90
Average	6.51	8.10	6.85	9.08	7.52	7.83	7.46	7.14	7.79

Year	Kinders- ley	Klint- onell	Lost River	Maple Creek	Melfort	Muen- ster	Nash- lyn	Outlook	Rosth- ern
1905.....	—	—	—	—	2.56	7.94	—	—	—
1906.....	—	—	—	—	—	7.34	—	—	—
1907.....	—	—	—	—	—	4.20	—	—	—
1908.....	—	—	—	—	—	7.07	—	—	—
1909.....	—	—	—	—	—	11.74	—	—	—
1910.....	—	—	—	—	5.31	3.94	—	—	—
1911.....	—	—	—	—	8.18	5.27	4.14	—	9.82
1912.....	—	5.73	11.00	—	11.99	11.43	4.83	—	10.88
1913.....	5.34	8.14	9.54	—	7.19	11.63	8.85	—	6.71
1914.....	3.75	3.99	5.87	—	4.33	5.59	2.43	—	6.04
1915.....	8.01	14.93	8.14	—	6.70	7.82	10.19	8.14	5.64
1916.....	16.85	11.99	17.34	—	14.28	10.81	8.39	10.27	8.99
1917.....	3.58	4.77	5.45	—	3.82	6.22	2.58	2.63	6.11
1918.....	2.98	3.95	7.67	—	6.54	6.35	1.19	2.23	6.34
1919.....	5.91	3.32	7.69	—	5.11	8.53	4.09	5.35	4.06
1920.....	5.76	9.20	3.08	—	2.78	4.16	5.40	4.80	5.70
1921.....	8.11	11.16	8.43	—	8.02	11.02	7.56	6.80	10.50
1922.....	3.91	9.43	7.83	5.72	6.89	8.21	6.56	3.95	6.17

TABLE 9—Continued

Year	Kinders- ley	Klint- onell	Lost River	Maple Creek	Melfort	Muen- ster	Nash- lyn	Outlook	Rosth- ern
1923.....	11.02	14.72	6.10	10.38	10.05	24.38	8.48	7.93	8.82
1924.....	4.02	9.44	5.80	5.59	3.27	2.25	5.86	.88	3.09
1925.....	5.72	9.52	7.89	6.11	9.08	6.19	7.41	8.35	8.99
1926.....	3.30	6.01	6.74	3.68	6.31	7.19	3.69	3.91	5.77
1927.....	12.42	13.72	6.36	14.15	9.38	13.89	11.74	9.48	14.10
1928.....	5.81	10.41	4.38	9.79	3.68	6.74	3.83	6.36	7.43
1929.....	4.81	9.15	6.95	6.95	8.52	7.15	6.71	6.03	6.95
1930.....	9.59	8.60	8.42	6.09	7.83	5.86	5.54	6.05	6.38
1931.....	3.28	7.09	5.24	4.61	4.57	4.84	5.63	5.71	7.07
1932.....	9.64	11.10	13.65	9.71	11.58	10.12	5.97	6.97	8.20
1933.....	4.56	7.74	7.24	5.81	8.36	7.32	5.89	4.22	6.76
1934.....	7.74	5.87	6.64	4.57	9.58	6.73	3.50	3.63	7.08
1935.....	4.88	7.74	4.97	5.47	7.02	10.94	6.53	8.78	7.05
1936.....	3.17	5.64	4.42	3.34	5.65	7.47	2.50	4.30	5.41
1937.....	5.02	4.90	8.09	3.58	6.46	6.83	4.89	4.21	7.99
1938.....	8.20	9.60	5.29	7.62	9.40	8.30	7.67	5.30	5.71
1939.....	7.30	14.65	9.46	13.00	8.60	10.60	8.46	9.50	9.15
1940.....	8.37	11.50	6.20	9.30	7.90	6.60	7.41	7.00	5.92
Average	6.50	8.61	7.43	7.49	7.64	8.17	5.92	5.88	7.30

Year	Scott	St. Walburg	The Pas	Turtle- ford	Wapa- shoe	Waseca	White- wood	Yellow Grass	Yorkton
1908.....	—	—	—	—	—	11.13	—	—	—
1909.....	—	—	—	—	—	8.12	—	—	13.14
1910.....	—	—	—	—	—	5.24	—	—	—
1911.....	—	—	10.75	—	8.66	8.62	—	—	—
1912.....	10.81	—	6.49	—	4.83	8.14	—	—	9.31
1913.....	5.36	—	7.91	—	6.07	5.09	—	6.67	11.73
1914.....	6.68	—	7.17	—	2.35	5.54	8.09	6.91	4.70
1915.....	7.95	6.38	5.08	—	11.39	7.11	7.97	7.69	10.15
1916.....	11.29	10.41	8.95	—	10.00	13.69	8.32	8.71	8.94
1917.....	3.42	3.71	5.11	—	5.04	3.24	7.96	4.50	—
1918.....	2.94	—	7.74	—	—	3.12	6.38	7.05	7.36
1919.....	3.33	6.14	7.18	—	—	3.12	9.09	5.42	8.05
1920.....	7.48	9.29	—	—	—	8.78	10.30	5.88	—
1921.....	7.24	7.81	3.55	12.37	—	6.59	11.26	11.60	12.17
1922.....	3.95	4.79	6.65	4.34	7.71	4.81	10.39	9.93	7.20
1923.....	11.16	7.73	4.83	9.02	10.91	8.53	11.26	11.10	9.47
1924.....	3.41	3.59	6.06	4.67	5.12	5.30	6.68	5.30	4.46
1925.....	9.08	8.67	8.94	7.79	5.72	6.87	5.11	9.26	5.83
1926.....	6.02	5.60	5.54	7.17	3.45	5.38	7.70	9.32	7.29
1927.....	9.20	10.96	4.85	13.78	15.79	11.44	9.54	7.46	11.94
1928.....	8.09	5.54	5.08	8.18	9.32	6.12	10.73	8.91	8.80
1929.....	4.88	5.52	3.56	7.31	8.16	4.33	5.64	5.28	5.25
1930.....	6.00	15.63	11.02	10.38	8.12	12.71	8.40	8.39	8.73
1931.....	5.93	7.95	5.53	7.44	3.86	6.10	2.75	4.52	4.82
1932.....	9.25	7.16	8.42	6.68	10.14	7.47	8.08	10.70	8.63
1933.....	4.89	6.53	4.52	8.75	6.12	7.72	11.42	10.50	11.43
1934.....	8.98	6.03	9.84	6.97	4.71	5.57	4.51	3.66	5.33
1935.....	6.35	8.20	6.93	7.46	6.45	5.44	12.79	12.02	10.88
1936.....	3.97	3.08	6.52	7.17	3.56	3.43	6.39	4.77	6.66
1937.....	7.16	9.20	5.18	7.59	3.77	5.76	4.11	4.17	5.30
1938.....	5.80	7.18	4.56	6.70	6.50	4.70	7.10	8.20	10.70
1939.....	7.50	7.20	6.40	7.60	11.80	5.40	5.10	8.40	6.50
1940.....	7.20	4.99	4.60	6.50	8.50	8.60	7.77	8.30	10.80
Average	6.88	7.27	6.53	7.96	7.23	6.71	7.96	7.66	8.33

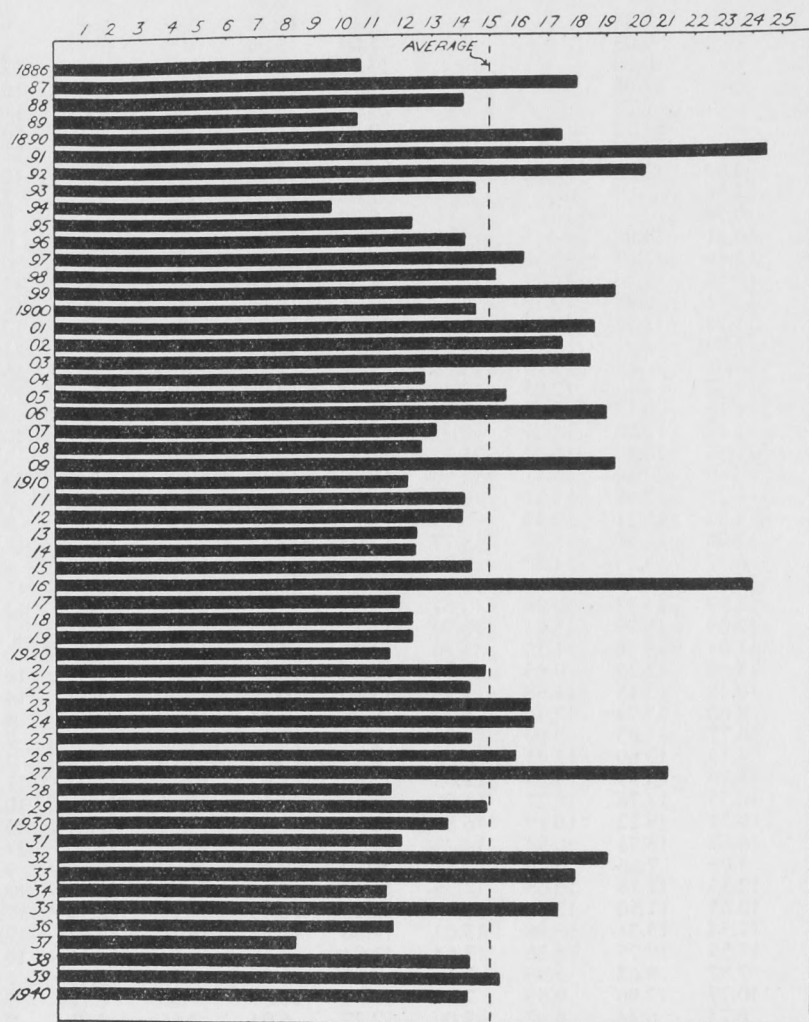


Figure 7. Annual Precipitation at Swift Current from 1886 to 1940.

The precipitation at Swift Current fluctuates from year to year without any definite period of wet or dry years. There is a strong tendency for wet years to be very wet while dry years are but moderately dry. This is shown by the fact that the average precipitation for the years above 15 inches is 18.6 or 3.6 inches above the long time average, while that for the years below 15 inches is 12.8 or only 2.2 inches below the long time average. Due to high evaporation the rainfall at Swift Current is relatively inefficient.

TABLE 10.—TOTAL CROP (August-October, April-July) PRECIPITATION at 36 STATIONS

Year	Battle- ford	Gren- fell	Indian Head	Moose Jaw	Prince Albert	Qu'- Appelle	Regina	Saska- toon	Swift Current
1884.....	—	—	—	—	—	9.65	—	—	—
1885.....	—	9.34	—	—	—	11.28	—	—	—
1886.....	—	9.03	—	—	4.09	8.86	—	—	—
1887.....	—	10.65	—	—	13.07	9.22	—	—	12.13
1888.....	—	12.05	—	—	9.70	14.37	—	—	10.60
1889.....	—	7.78	—	—	5.52	9.78	—	—	11.19
1890.....	—	15.22	—	—	9.82	14.65	—	—	6.46
1891.....	—	19.72	—	—	9.28	19.92	—	—	21.32
1892.....	8.09	12.86	8.23	—	11.93	12.46	—	—	18.41
1893.....	11.58	—	—	—	7.68	14.26	—	—	7.29
1894.....	10.50	—	—	—	8.70	6.91	—	—	9.93
1895.....	10.81	13.08	—	—	8.25	13.86	—	—	9.74
1896.....	11.46	13.87	13.10	11.58	14.61	16.74	—	—	6.88
1897.....	10.50	5.70	14.71	13.81	9.30	10.48	—	—	12.22
1898.....	12.51	6.07	10.38	6.53	9.73	10.46	—	—	12.04
1899.....	11.77	12.76	18.17	11.32	18.16	19.38	—	—	13.79
1900.....	17.89	—	6.70	15.31	20.44	9.30	—	—	13.17
1901.....	16.01	—	23.19	15.01	19.49	21.24	21.94	15.03	16.58
1902.....	12.37	—	17.05	12.46	16.22	19.06	12.06	14.45	16.86
1903.....	11.16	9.12	10.70	12.74	10.26	12.07	—	11.27	12.70
1904.....	11.13	14.73	14.85	9.92	14.24	15.85	10.40	14.58	10.41
1905.....	11.35	10.17	15.02	21.13	7.27	17.26	15.05	11.20	15.26
1906.....	8.66	20.46	18.41	14.60	18.60	19.41	19.29	10.15	13.32
1907.....	6.23	12.95	12.61	8.93	10.24	14.40	12.89	9.13	8.57
1908.....	14.22	11.71	16.59	6.15	16.93	14.22	12.69	11.62	9.21
1909.....	12.00	17.48	15.88	15.77	15.03	19.47	17.04	14.42	18.13
1910.....	6.57	15.84	11.28	9.75	6.32	13.72	11.26	7.83	8.94
1911.....	16.35	11.57	16.14	11.64	8.90	13.34	13.83	14.94	11.31
1912.....	12.99	17.33	16.08	13.67	14.92	18.58	11.00	13.01	12.10
1913.....	12.09	16.99	15.03	10.90	13.17	15.45	11.27	11.46	11.89
1914.....	11.04	18.36	11.75	13.80	14.04	17.60	13.08	9.54	6.38
1915.....	15.39	12.23	9.05	11.31	10.63	12.92	7.02	9.97	14.55
1916.....	10.48	12.15	14.88	11.99	13.90	16.54	14.96	13.42	14.29
1917.....	9.60	15.74	12.79	8.32	8.95	17.24	10.70	8.27	8.97
1918.....	6.77	11.03	9.99	12.55	9.85	12.50	18.55	10.97	7.95
1919.....	4.13	13.69	12.41	8.80	8.12	13.59	9.14	7.54	7.53
1920.....	15.78	9.95	13.74	12.03	13.45	11.63	10.32	12.23	11.71
1921.....	16.35	17.76	18.27	14.56	18.45	20.50	16.22	16.61	10.39
1922.....	9.32	18.22	16.19	16.85	11.99	17.67	14.11	10.01	15.99
1923.....	16.62	18.71	20.94	14.43	14.07	23.75	16.92	18.36	14.78
1924.....	4.78	7.60	7.19	7.71	8.29	8.16	6.90	6.62	9.24
1925.....	12.55	12.15	10.68	14.35	15.67	13.64	13.65	12.84	12.47
1926.....	10.65	11.50	12.56	10.49	12.26	12.43	11.79	12.14	12.97
1927.....	12.54	15.31	16.56	13.03	14.86	17.12	16.16	14.33	17.57
1928.....	11.55	19.75	18.36	12.64	11.04	18.35	16.53	14.11	14.44
1929.....	7.87	8.62	5.98	5.16	9.53	5.25	5.38	8.15	8.46
1930.....	10.27	12.96	9.59	7.67	11.37	11.69	7.62	8.18	9.17
1931.....	6.73	6.44	5.97	9.00	12.27	6.94	7.65	9.96	9.81
1932.....	13.06	15.10	12.27	15.24	16.66	12.92	10.82	9.88	15.51
1933.....	8.27	14.90	14.75	13.95	11.73	13.64	12.42	7.13	11.57
1934.....	13.98	9.96	10.67	11.06	14.70	12.06	10.23	9.88	14.19
1935.....	8.36	14.99	14.93	12.53	10.49	15.00	13.19	11.86	12.34
1936.....	7.80	12.18	10.62	11.63	9.24	13.16	10.68	10.27	7.75
1937.....	10.68	7.51	7.53	6.29	10.58	6.06	6.95	5.50	5.49
1938.....	8.30	11.70	7.73	9.11	8.80	10.63	8.62	9.44	7.90
1939.....	13.00	9.40	9.40	10.20	13.40	11.20	12.70	15.30	15.50
1940.....	7.60	12.10	9.60	8.60	8.30	13.10	9.00	8.00	8.50
Average	10.94	12.83	13.03	11.20	11.85	14.26	11.97	11.15	11.71

TABLE 10—Continued

Year	Anglia	Carlyle	Caron	Ceylon	Chaplin	Estevan- Midale	Hub- bard	Iller- burn	Kam- sack
1903.....	—	—	—	—	—	—	—	—	—
1904.....	—	—	—	—	—	12.19	—	—	—
1905.....	—	—	—	—	—	14.96	—	—	—
1906.....	—	—	—	—	—	11.36	—	—	—
1907.....	—	—	—	—	13.35	5.61	—	—	—
1908.....	—	—	—	—	12.36	15.54	—	—	—
1909.....	—	—	—	—	17.89	14.92	17.08	—	15.99
1910.....	—	—	—	—	10.00	9.40	10.17	—	12.10
1911.....	19.17	—	—	—	13.56	10.16	8.53	—	—
1912.....	—	—	—	—	13.96	14.87	16.61	12.89	—
1913.....	—	—	—	—	11.45	13.51	11.80	12.04	—
1914.....	8.05	—	—	—	9.03	9.10	9.94	7.65	7.08
1915.....	16.48	—	—	—	14.57	11.26	10.67	16.91	13.34
1916.....	12.91	—	9.30	—	14.63	10.32	15.05	15.06	9.14
1917.....	8.45	—	7.56	—	11.21	9.25	11.08	7.41	12.64
1918.....	6.62	—	—	—	10.20	7.14	11.60	5.87	11.49
1919.....	6.13	—	7.74	—	9.09	11.47	10.30	6.56	11.63
1920.....	10.35	—	9.41	—	13.22	10.51	10.53	12.22	7.45
1921.....	12.47	—	17.10	—	8.96	16.89	21.07	9.78	24.10
1922.....	10.91	—	12.40	—	14.41	16.42	15.25	10.93	15.14
1923.....	16.44	15.26	9.02	20.20	11.97	18.59	17.37	14.48	11.78
1924.....	7.88	18.69	3.79	14.29	12.58	10.48	5.72	9.17	5.50
1925.....	10.25	18.62	11.22	14.19	12.68	13.12	10.22	11.00	14.56
1926.....	7.35	14.02	6.82	15.87	9.12	13.26	10.47	9.36	9.55
1927.....	12.66	16.95	22.10	21.27	15.27	16.26	15.80	17.68	16.82
1928.....	12.61	17.50	12.32	18.56	13.12	18.41	15.66	13.30	14.99
1929.....	10.39	9.09	5.82	7.25	4.66	8.17	4.65	8.03	6.46
1930.....	7.89	11.14	7.29	11.42	7.47	9.45	8.20	7.82	10.70
1931.....	7.15	8.43	7.87	7.84	6.72	8.36	7.30	10.20	8.64
1932.....	7.19	17.46	11.05	12.66	14.58	11.78	11.35	11.35	10.26
1933.....	5.28	10.57	11.97	15.91	10.79	14.86	14.62	10.78	17.27
1934.....	6.33	7.02	14.29	8.56	11.09	8.54	14.77	9.06	10.20
1935.....	6.68	16.91	12.29	11.18	9.63	14.76	13.87	10.48	12.46
1936.....	4.45	5.57	11.10	8.78	8.52	9.03	11.45	3.79	12.54
1937.....	6.48	8.04	7.24	7.77	6.07	4.21	7.18	4.18	10.31
1938.....	8.53	10.98	9.76	13.57	6.46	11.78	11.74	6.87	15.14
1939.....	12.36	8.60	11.70	10.92	10.50	7.70	10.16	—	15.40
1940.....	10.77	13.40	10.70	16.00	7.90	9.90	11.62	8.44	7.70
Average	9.66	12.62	10.36	13.18	11.11	11.79	11.87	10.12	12.07

Year	Kinders- ley	Klint- onell	Lost River	Maple Creek	Melfort	Muen- ster	Nash- lyn	Outlook	Rosth- ern
1905.....	—	—	—	—	4.39	10.46	—	—	—
1906.....	—	—	—	—	—	12.83	—	—	—
1907.....	—	—	—	—	—	8.70	—	—	—
1908.....	—	—	—	—	—	10.72	—	—	—
1909.....	—	—	—	—	—	17.06	—	—	—
1910.....	—	—	—	—	—	4.74	—	—	—
1911.....	—	—	—	—	12.72	6.97	—	—	—
1912.....	—	14.10	15.28	—	18.26	14.56	13.94	—	14.48
1913.....	9.06	11.92	16.59	—	12.41	18.70	11.02	—	11.84
1914.....	7.71	6.15	12.59	—	8.03	11.19	4.76	—	12.81
1915.....	14.34	21.63	12.38	—	8.55	10.16	15.96	—	9.30
1916.....	19.19	17.93	20.10	—	16.47	15.47	10.83	12.07	10.66
1917.....	8.57	10.47	10.66	—	7.56	8.84	6.00	6.59	10.05
1918.....	5.68	8.72	9.61	—	8.40	8.80	3.85	4.68	9.67
1919.....	10.23	6.18	12.22	—	7.36	10.60	6.61	9.15	5.05
1920.....	11.21	12.60	8.53	—	7.93	9.09	7.34	8.31	10.52
1921.....	12.01	13.79	13.19	—	12.10	15.59	9.19	12.50	15.36

TABLE 10—Continued

Year	Kinders- ley	Klint- onell	Lost River	Maple Creek	Melfort	Muen- ster	Nash- lyn	Outlook	Rosth- ern
1922.....	7.68	14.03	13.11	9.47	11.70	12.91	8.31	9.20	10.45
1923.....	14.63	19.04	10.04	14.02	15.29	31.37	10.13	12.05	14.60
1924.....	6.69	10.63	11.31	—	9.58	8.61	6.61	—	7.14
1925.....	11.48	14.24	12.50	9.96	13.93	7.77	8.77	13.60	15.84
1926.....	6.33	12.35	12.07	7.73	14.74	11.43	8.91	7.06	12.68
1927.....	14.93	16.99	14.83	17.04	17.32	19.75	16.62	11.39	17.76
1928.....	10.83	13.40	12.10	14.96	12.81	13.34	5.97	10.95	12.55
1929.....	7.19	10.69	9.12	8.63	12.11	9.29	8.80	6.93	8.90
1930.....	11.30	11.76	11.16	8.05	11.49	—	7.79	7.35	8.63
1931.....	8.18	9.15	11.60	8.42	13.10	13.00	8.02	9.52	13.57
1932.....	14.00	16.56	19.04	12.39	16.84	13.97	6.80	10.96	12.13
1933.....	6.68	12.45	14.15	10.43	14.65	11.29	8.38	6.92	9.79
1934.....	11.72	12.40	11.77	10.65	15.64	9.39	6.79	8.39	11.52
1935.....	6.05	10.64	7.43	8.61	9.88	13.22	9.11	10.39	9.20
1936.....	4.67	7.09	8.45	4.46	11.23	12.80	3.37	6.63	11.91
1937.....	5.50	7.60	12.50	4.98	9.92	8.25	6.90	5.68	10.44
1938.....	9.72	13.75	8.80	9.46	13.06	12.10	10.72	7.01	9.35
1939.....	10.43	19.37	15.12	17.50	14.50	14.80	10.06	13.00	15.14
1940.....	10.58	14.81	8.77	12.70	10.00	9.10	10.18	8.20	7.18
Average	9.78	12.69	12.18	10.81	12.25	12.11	8.63	8.88	11.40

Year	Scott	St. Walburg	The Pas	Turtle- ford	Wapa- shoe	Waseca	White- wood	Yellow Grass	Yorkton
1908.....	—	—	—	—	—	18.25	—	—	—
1909.....	—	—	—	—	—	11.84	—	—	—
1910.....	—	—	—	—	—	6.67	—	—	—
1911.....	—	—	16.54	—	12.14	11.12	—	—	—
1912.....	15.55	—	11.21	—	10.07	10.06	—	—	18.07
1913.....	10.45	—	14.88	—	11.30	10.95	—	8.89	18.17
1914.....	11.00	—	11.69	—	4.91	7.69	—	—	10.53
1915.....	16.04	—	9.15	—	19.07	11.98	11.86	10.08	13.95
1916.....	13.00	12.24	10.51	—	13.58	15.27	11.97	11.69	12.31
1917.....	9.56	8.67	11.82	—	10.17	8.82	14.04	10.62	—
1918.....	5.31	—	12.68	—	—	4.95	9.82	10.30	10.35
1919.....	4.77	7.26	12.61	—	—	3.64	14.40	9.58	12.28
1920.....	12.82	17.97	—	—	—	17.69	15.93	9.12	—
1921.....	11.64	11.37	—	18.18	—	10.97	16.26	15.99	17.95
1922.....	7.02	8.69	10.87	8.68	12.26	9.47	17.99	15.58	17.93
1923.....	15.77	14.62	8.95	14.60	15.72	14.03	15.51	13.71	15.61
1924.....	5.83	7.37	11.12	9.54	6.57	8.57	10.75	9.21	7.18
1925.....	13.86	14.10	13.62	11.02	8.74	9.55	10.88	14.39	9.98
1926.....	10.10	8.39	11.83	10.99	9.36	10.06	11.76	14.79	11.59
1927.....	13.07	14.83	8.84	21.52	18.36	15.96	16.45	13.61	18.20
1928.....	12.47	9.55	11.61	12.73	12.30	9.36	17.98	14.85	16.56
1929.....	6.01	9.07	6.46	8.86	10.85	5.01	7.67	6.90	6.51
1930.....	7.99	16.90	14.95	11.82	9.87	13.54	11.52	11.65	11.61
1931.....	9.53	13.29	10.38	15.36	7.14	11.88	5.10	7.25	7.44
1932.....	12.81	14.30	13.80	12.80	12.11	14.09	13.24	17.62	13.70
1933.....	7.20	8.24	8.20	12.56	9.13	11.31	15.19	14.60	17.68
1934.....	13.56	9.22	15.60	12.84	11.74	10.81	9.56	8.19	9.95
1935.....	9.00	10.06	12.91	8.73	9.12	7.28	15.72	15.42	13.36
1936.....	7.17	8.09	12.51	11.61	5.69	6.39	11.39	7.22	10.92
1937.....	9.53	13.93	11.98	12.84	6.93	8.78	5.97	6.29	8.44
1938.....	8.60	9.55	10.24	10.30	8.33	6.34	12.35	12.66	14.89
1939.....	13.00	10.50	11.50	12.41	16.07	8.40	8.00	10.80	10.90
1940.....	8.80	7.44	8.20	8.50	11.23	11.20	11.30	10.15	13.70
Average	10.51	10.98	11.57	12.34	10.88	10.25	12.44	11.59	12.94

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